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Bacterial colonization of central venous catheters after heart valve surgery: a risk factor study

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Introduction

In the presence of a prosthetic heart valve, the colonization of a central venous catheter (CVC) has been implicated as a risk factor for endocarditis. Avoiding bacterial colonization of Central Venous Catheters (CVCs) is an everyday challenge for clinicians

Objectives

This study evaluated EuroSCORE (Score use for predicting surgical mortality) and the preoperative presence of diabetes to identify patients at a higher risk of a bacterial contamination of the central venous catheter (CVC) after heart valve replacement or valvuloplasty.

Methods

An observational evaluation was conducted from January 2006 through January 2013 on prospective data submitted to a database. 1324 consecutive patients after valve surgery were included (from January 2006 to December 2010). The systematic cultures of CVC were performed for all patients regardless of infection symptoms. A long-term monitoring (2 years) was done by phone call (up to January 2013). Patients suspected of prosthetic valve endocarditis had an echocardiography, and a blood analysis (particularly, blood cultures). Statistical analysis was processed by Systat 11 using Chi 2 test; Student's t test; Kruskal-Wallis test; Fisher exact test and a 'step-by-step' logistic regression. A p value < 0.05 was considered statistically significant.

Results

The catheter-related bacteraemia was 5‰ or 0.84/1000 catheter days. The values of the additive and logistic EuroSCOREs were not significantly higher in case of CVC colonization. EuroSCOREs higher than 6 were significantly but only moderately involved with the occurrence of CVC colonization (p = 0.034) (Odds Ratio 1.76; 95% CI [1.04; 2.97]). Diabetes was significantly but moderately associed with CVC colonization (p = 0.041) (Odds Ratio 1.87; 95% CI [1.02; 3.43]). Among parameters of euroSCORE, an ejection fraction of < 30% was closely related to CVC colonization (p = 0.004) (Odds Ratio 4.91; 95% CI [1.65; 14.55]). The catheter's exposure influenced significantly catheter colonization.

Conclusion

A poor left ventricular function is the main risk factor in bacterial colonization of CVC. Global risk score and prexisting diabete are not useful to predict postoperative CVC colonization

Disclosure of interest

None declared.

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